Cherokee National Forest
USDA Forest Service
Southern Region

Roads Analysis Report

Greasy Creek Assessment

September 2006

BACKGROUND

On January 12, 2001, the National Forest System Road Management rule was published in the Federal Register. The adoption of the final rule revised the regulations concerning the management, use, and maintenance of the National Forest Transportation System.

The purpose of this road analysis is to provide line officers with critical information to develop road systems that are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal negative ecological effects on the land, and are in balance with available funding for needed management actions.

SCOPE

The Greasy Creek Assessment area is approximately 18,700 acres in size with approximately 14,400 of those acres National Forest System land (77% ownership). The majority of the assessment area (10,250 ac) is in Management Prescription (MP) 9.H of the Cherokee National Forest Revised Land and Resource Management Plan. Other MPs represented include: 4.F (240 ac), 5.A (16 ac), 5.B (27 ac), 7.A (2,260 ac), 7.B (1,140 ac), and 7.D (400 ac). Figure 1 displays the location of the analysis area within the Ocoee/Hiwassee Ranger District of the Cherokee National Forest.

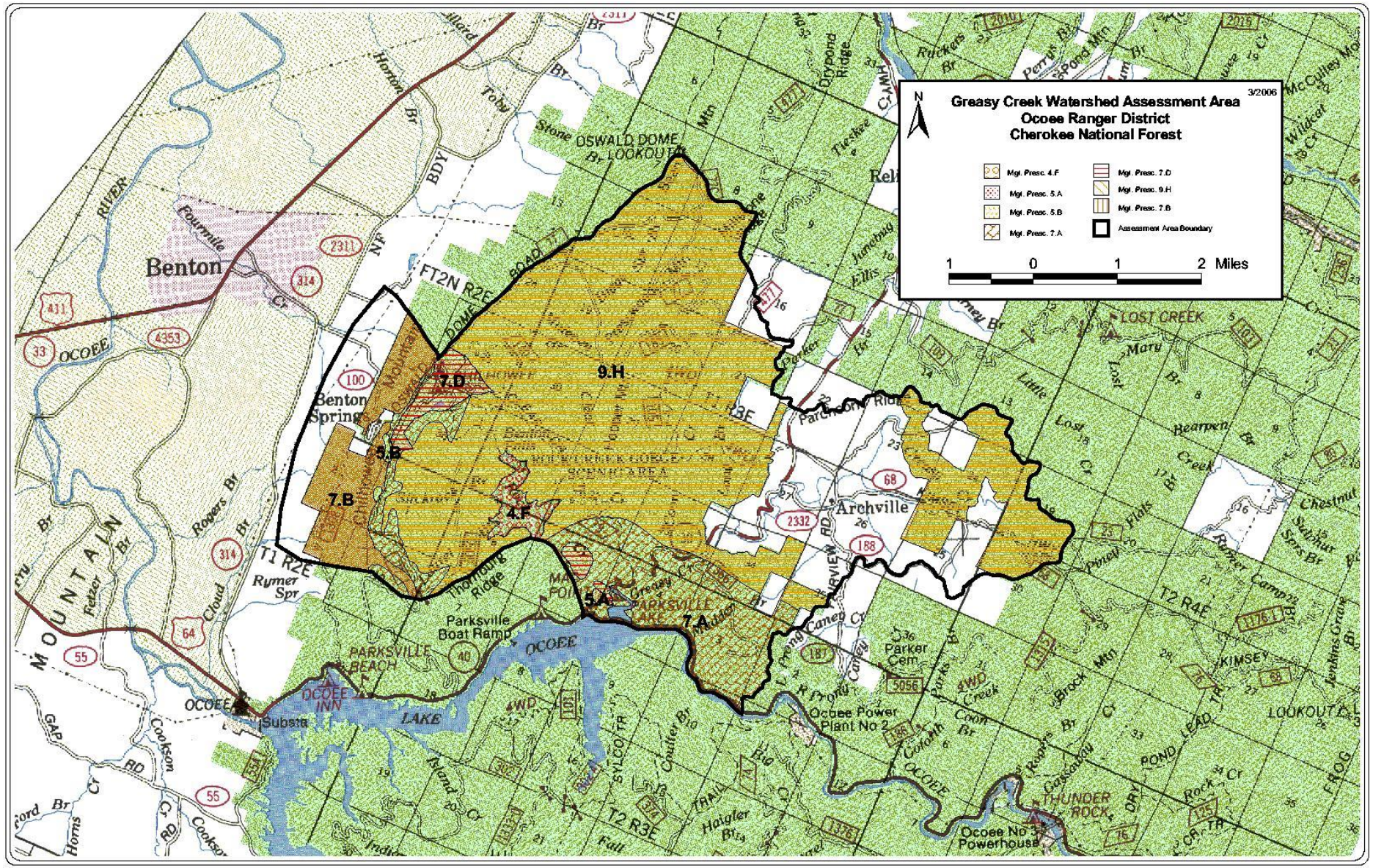
OBJECTIVES

The main objectives of this road analysis are to:

- Identify the need for change by comparing the current road system to the desired condition.
- Inform the line officer of important ecological, social, and economic issues related to roads within the analysis area.

EXISTING SYSTEM ROAD CONDITIONS

Most of the study area is on National Forest System land, and of the roads assessed in and near the boundary of this study area, most are National Forest System Roads (NFSRs) under the jurisdiction and maintenance of the Forest Service. There are approximately 63 miles of Forest Service jurisdiction roads within the analysis area. This represents a road density of 2.7 miles of Forest Service road per square mile within the analysis area. Many of the Forest Service roads (approximately 40 miles) are gated, vegetated, and closed seasonally or throughout the year. Most of the NFSRs are in fair to good condition, but all could use more maintenance. Deferred maintenance needs exist for just about all roads.


Greasy Creek Watershed Assessment Area
Ocoee Ranger District
Cherokee National Forest
3/2006
N
Mgt. Presc. 4.F
Mgt. Presc. 5.A
Mgt. Presc. 5.B
Mgt. Presc. 7.A
Mgt. Presc. 7.D
Mgt. Presc. 9.H
Mgt. Presc. 7.B
Assessment Area Boundary
1 0 1 2 Miles
9.H
7.D
5.B
7.B
4.F
5.A
7.A
Benton
Archville
Parksville Boat Ramp
Ocoee Power Plant No 2
Ocoee No 3 Powerhouse
OSWALD DOME LOOKOUT
LOST CREEK
PARKSVILLE BEACH
OCOEE INN
LAKE OCOEE
MOUNTAIN
T1 R2E
T2 R3E
T2 R4E
FT2N R2E
T2N R3E

See the “Greasy Creek Road Listing” (Attachment A) for basic road data that describes in more detail each road situation.

DESIRED ROAD SYSTEM CONDITIONS

The desired condition is to provide a road system that is safe, responsive to public needs, meets the needs for forest management, is affordable, and has minimal ecological effects.

KEY ISSUES

The key issues related to road construction, relocation, decommissioning, closures, and other road management actions are:

- Keep system road construction to a minimum.
- Protect riparian corridor.
- Decrease sedimentation.

ANALYSIS QUESTIONS

Pages 25-30 of FS-643, Roads Analysis: Informing Decisions About Managing the National Forest Transportation System (FS-643) lists 72 questions to be used as a checklist to identify potential benefits, problems, or risks. Some of these questions may not be addressed, because they are irrelevant or are appropriate only if there are extraordinary circumstances specific to the analysis area (some questions would be answered the same for any road or road system around the forest and are therefore beyond the scope of this analysis). This analysis will only address those questions that are both relevant and specific to the roads within the analysis area. **Question**	**Relevant to this analysis area?**	**Specific to this analysis area?**	**Addressed in this Analysis?**
AQ (1): How and where does the road system modify the surface and subsurface hydrology of the area?	Y	N	Y
AQ (2): How and where does the road system generate surface erosion?	Y	N	Y
AQ (3): How and where does the road system affect mass wasting?	Y	N	Y
AQ (4): How and where do road-stream crossings influence local stream channels and water quality?	Y	N	Y
AQ (5): How and where does the road system create potential for pollutants, such as chemical spills, oils, deicing salts, or herbicides, to enter surface waters?	Y	N	Y
AQ (6): How and where is the road system "hydrologically connected" to the stream system? How do the connections affect water quality and quantity?	Y	N	Y
AQ (7): What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants?	Y	N	Y
AQ (8): How and where does the road system affect wetlands?	Y	N	N
AQ (9): How does the road system alter physical channel dynamics, including isolation of floodplains, constraints on channel migration, and the movement of large wood, fine organic matter, and sediment?	Y	N	Y
AQ (10): How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species (i.e., fish and amphibians) are affected and to what extent?	Y	N	Y
AQ (11): How does the road system affect shading, litterfall, and riparian plant communities?	Y	N	Y
AQ (12): How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk aquatic species?	Y	N	Y
AQ (13): How and where does the road system facilitate the introduction of non-native aquatic species?	Y	N	Y
AQ (14): To what extent does the road system overlap with areas of exceptionally high aquatic diversity or productivity or areas containing rare or	Y	N	Y

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unique aquatic species or species of interest?			
TW (1): What are direct effects of the road system on terrestrial species habitat?	Y	N	N
TW (2): How does the road system facilitate human activities that affect habitat?	Y	N	N
TW (3): How does the road system affect legal and illegal human activities (including trapping, hunting, poaching, harassment, road kill, or illegal kill levels)? What are the effects on wildlife species?	Y	N	N
TW (4): How does the road system directly affect unique communities or special features in the area?	Y	N	N
EF (1): What ecological attributes, particularly those unique to the region, would be affected by roading of currently unroaded areas?	Y	N	N
EF (2): To what degree does the presence, type, and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases, and parasites? What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?	Y	N	N
EF (3): To what degree does the presence, type, and location of roads contribute to the control of insects, diseases, and parasites?	Y	N	N
EF (4): How does the road system affect ecological disturbance regimes in the area?	Y	N	N
EF (5): What are the adverse effects of noise caused by developing, using, and maintaining roads?	Y	N	N
EC (1): How does the road system affect the Agency's direct costs and direct revenues used in assessing financial efficiency?	Y	N	N
EC (2): How does the road system affect the priced and non-priced consequences included in economic efficiency analysis used to assess net benefits to society?	Y	N	N
EC (3): How does the road system affect the distribution of benefits and costs among affected people?	Y	N	N
TM (1): How does the road spacing and location affect logging system feasibility?	Y	N	N
TM (2) and TM (3): How does the road system affect managing the suitable timber base? How does the road system affect access to timber stands needing silvicultural treatment?	Y	N	Y
MM (1): How does the road system affect access	Y	N	N

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to locatable, leasable, and salable minerals?			
RM (1): How does the road system affect access to range allotments?	N	N	N
WP (1): How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes?	Y	Y	Y
WP (2): How does road development and use affect water quality in municipal watersheds?	N	N	Y
WP (3): How does the road system affect access to hydroelectric power generation?	Y	N	Y
SP (1): How does the road system affect access for collecting special forest products?	Y	N	N
SU (2): How does the road system affect managing special-use permit sites (concessionaires, communications sites, utility corridors, and so on)?	Y	N	Y
GT (1): How does the road system connect to public roads and provide primary access to communities?	Y	N	Y
GT (2): How does the road system connect large blocks of land in other ownership to public roads (ad-hoc communities, subdivisions, in holdings, and so on)?	Y	N	Y
GT (3): How does the road system affect managing roads with shared ownership or with limited jurisdiction? (RS 2477, cost-share, prescriptive rights, FLPMA easements, FRTA easements, COT easements)?	Y	N	Y
GT (4): How does the road system address the safety of road users?	Y	N	Y
AU (1): How does the road system affect access needed for research activities, inventory, and monitoring?	Y	N	N
AU (2): How does the road system affect investigative or enforcement activities?	Y	N	N
PT (1): How does the road system affect fuels management?	Y	N	N
PT (2): How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?	Y	N	N
PT (3): How does the road system affect risk to fire fighters and to public safety?	Y	N	N
PT (4): How does the road system contribute to airborne dust emissions resulting in reduced visibility	Y	N	N

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and human health concerns?			
UR (1): Is there now or will there be in the future excess supply or excess demand for unroaded* recreation opportunities?	Y	Y	Y
UR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing the maintenance of existing roads causing substantial changes in the quantity, quality, or type of unroaded recreation opportunities?	Y	Y	Y
UR (3): What are the adverse effects of noise and other disturbance caused by developing, using, and maintaining roads, on the quantity, quality, and type of unroaded recreation opportunities?	Y	Y	Y
UR (4): Who participates in unroaded recreation in the areas affected by building, maintaining, and decommissioning roads?	Y	Y	Y
UR (5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?	Y	Y	Y
UR (6): How is developing new roads into unroaded areas affecting the Scenic Integrity Objective, SIO(s)? Note: Some forests are still using the Visual Management System (VMS). If that is the case, substitute VQO for SIO.	Y	Y	Y
RR (1): Is there now or will there be in the future excess supply or excess demand for road-related* recreation opportunities?	Y	N	N
RR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing maintenance of existing roads causing substantial changes in the quantity, quality, or type of road-related recreation opportunities?	Y	N	N
RR (3): What are the adverse effects of noise and other disturbances caused by building, using, and maintaining roads on the quantity, quality, or type of roaded recreation opportunities?	Y	N	Y
RR (4): Who participates in road-related recreation in the areas affected by road building, changes in road maintenance, or road decommissioning?	Y	Y	Y
RR (5): What are these participants attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?	Y	Y	Y
RR (6): How does the road system affect the Scenic Integrity Objective, SIO?	Y	Y	Y
PV (1): Do areas planned for road building,	Y	N	N

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closure, or decommissioning have unique physical or biological characteristics, such as unique natural features and threatened or endangered species (see TW4)?			
PV (2): Do areas planned for road building, closure, or decommissioning have unique cultural, traditional, symbolic, sacred, spiritual, or religious significance?	Y	N	N
PV (3): What, if any, groups of people (ethnic groups, subcultures, and so on) hold cultural, symbolic, spiritual, sacred, traditional, or religious values for areas planned for road entry or road closure?	Y	N	N
PV (4): Will building, closing, or decommissioning roads substantially affect passive-use value?	Y	N	N
SI (1): What are people's perceived needs and values for roads? How does road management affect people's dependence on, need for, and desire for roads?	Y	Y	Y
SI (2): What are people's perceived needs and values for access? How does road management affect people's dependence on, need for, and desire for access?	Y	Y	Y
SI (3): How does the road system affect access to paleontological, archaeological, and historical sites?	Y	N	N
SI (4): How does the road system affect cultural and traditional uses (such as plant gathering, and access to traditional and cultural sites) and American Indian treaty rights?	Y	N	N
SI (5): How are roads that constitute historic sites affected by road management?	Y	Y	Y
SI (6): How are community, social, and economic health affected by road management (for example, lifestyles, businesses, tourism industry, infrastructure maintenance)?	Y	Y	Y
SI (7): What is the perceived social and economic dependency of a community on an unroaded area versus the value of that unroaded area for its intrinsic existence and symbolic values?	Y	N	N
SI(8): How does road management affect wilderness attributes, including natural integrity, natural appearance, opportunities for solitude, and opportunities for primitive recreation?	Y	N	N
SI (9): What are traditional uses of animal and plant species in the area of analysis?	Y	N	N

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SI (10): How does road management affect people's sense of place?	Y	Y	Y
CR (1): How does the road system, or its management, affect certain groups of people (minority, ethnic, cultural, racial, disabled, and low-income groups)?	Y	N	N

Questions from the table above that are both relevant and specific to the roads in this analysis area will be discussed below:

AQ (1): How and where does the road system modify the surface and subsurface hydrology of the area?
This analysis area includes the Greasy Creek and Madden Branch watersheds. These are tributary streams of the Ocoee River.

In general, roads intercept precipitation on the road surface, cutbacks and from subsurface water moving down adjacent hill slopes. Water can be concentrated either on the road surface or in adjacent ditches, and in places, is rerouted from pathways it would otherwise take if the road were not present. By intercepting surface and subsurface water flow, and diverting it into ditches and channels, roads effectively increase the density of streams in the landscape. As a result, the timing of flood flows is quickened and the peak of flood flows is increased. The magnitude of this effect is dependent on the density of roads in the watershed. There are approximately 63 miles of Forest Service jurisdiction roads within the analysis area. This represents a road density of 2.7 miles of Forest Service road per square mile within the analysis area. Many of the Forest Service roads (approximately 40 miles) are gated, vegetated, and closed seasonally or throughout the year. Within this analysis area, Forest Roads 77, 185, 68, 1308, 33571, 33041, and 33042 are most significant in terms of their length and potential influence on surface hydrology. These are basically ridge-top/upper side-slope road locations, however, with reduced connectivity to surface and subsurface water. Each of these roads are out sloped with dips and culverts providing drainage or in sloped with ditches and cross drains providing water drainage.

Surface drainage can be improved by additional aggregate surfacing, additional drainage dips, cross drain culverts, berms and out sloping. These mitigation measures can reduce the impacts associated with the roads, including effects to surface and subsurface hydrology and erosion/sediment rates.

AQ (2): How and where does the road system generate surface erosion?
By their nature, all native and aggregate surfaced roads will generate some surface erosion. The amount depends on factors such as soil type, road gradient, the spacing and effectiveness of drainage structures, traffic use and maintenance activity. Two-thirds of the Forest Service road mileage within this analysis area is closed to all but administrative traffic. These roads are generally vegetated with a grass-wildlife mixture and serve as linear wildlife openings. As a result, surface erosion is minimized from these roads. Roads open to public use provide a continual opportunity for surface erosion, but effective mitigation described in AQ1 will limit surface erosion. Any road opened and used for commercial use (such as logging traffic), would result in an increased potential for surface erosion, but reconstruction or maintenance activities associated with this kind of use would mitigate erosion during use and result in a road with less erosion potential after its use. Surface erosion would also be a concern on any newly constructed permanent or temporary road until the road are closed and revegetated or otherwise stabilized with mitigation measures. Location and grade will be important factors in limiting surface erosion during use.

AQ (3): How and where does the road system affect mass wasting?
Mass wasting is generally not a problem in the analysis area. One slide event is known to have occurred. This occurred in May, 2003 along Forest Road 77. Loose, granular, sandy textured soils exist in this portion of the analysis area.

Small slides and slumps are possible below culvert outfalls and along fill slopes where road drainage is concentrated. Proper sizing and location of drainage culverts can reduce this potential, as well as, armoring the outfall areas associated with drainage structures, as needed.

AQ (4): How and where do road-stream crossings influence local stream channels and water quality?
There is an estimated 80 road crossings associated with intermittent and perennial streams located on National Forest System lands within the analysis area. There are numerous other crossings associated with ephemeral drainages. Most of these crossings involve the use of culverts. This estimation is not based on field survey, but rather on interpretation of topographic maps. These crossings represent direct interaction of roads and streams and serve as a primary conduit for road-related erosion and storm drainage to reach streams. Accelerated sediment delivery to affected streams occurs at these points, and can affect water quality and substrate condition.

AQ (5): How and where does the road system create potential for pollutants, such as chemical spills, oils, deicing salts, or herbicides, to enter surface waters?
Due to the nature and location of the roads within this analysis area, there is little potential for chemical pollution of streams related to Forest Service roads. If roads were used to transport chemicals such as herbicide, the greatest potential for spills affecting aquatic resources would be at stream crossings. Very little of the roads within this analysis area are located adjacent to stream channels. Most of the roads (90%+) are located on ridgetop or upper sideslope locations. US 64 and SR 30 offer the greatest potential for chemical spills and deicing salts to enter waterways. Truck spills have occurred in the past on US 64.

AQ (6): How and where is the road system "hydrologically connected" to the stream system? How do the connections affect water quality and quantity?

The road system in the analysis area is connected to streams primarily at stream crossings. There is occasional roadside ditch drainage that empties directly into streams and road surface (Forest Road 185) that lies adjacent to streams directing runoff and sediment from roadbed/fill surfaces to streams. The vast majority of road mileage within this analysis area is located along ridge-tops or upper side-slopes. Hydrologic connectivity is reduced due to road location. Road crossings serve as an input point for road-related soil erosion to reach stream channels. Surface and subsurface water can be captured by roadbeds and cut slopes. If this water moves directly to stream channels, peakflows and hydrograph timing can be somewhat altered from the condition associated with an unroaded watershed.

AQ (7): What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants?

The primary use classification for waters within the analysis area is the support of fish and aquatic life. The use classification for Greasy Creek and Madden Branch is "Fish and Aquatic Life" and "Recreation". The use classification for Rock Creek is "Trout Stream". Downstream, the use classification of water includes "industrial water supply" for the Ocoee River. Little change in use and demand within the analysis area is expected in the near future. Excessive sediment delivery from roads would have the potential to adversely affect fish and other aquatic organisms by reducing the quality of habitat. Fish or other aquatic organism passage is discussed in AQ10.

AQ (8): How and where does the road system affect wetlands?

There are no known locations where the road system is directly affecting wetland condition or function. Segments of Forest Road 185 encroach into the floodplain/riparian area of Clear Creek, but there is no direct affect to wetlands.

AQ (9): How does the road system alter physical channel dynamics, including isolation of floodplains, constraints on channel migration, and the movement of large wood, fine organic matter, and sediment?

The road system can alter physical channel dynamics by increasing runoff and sediment delivery to affected streams. Sediment entering streams can reduce pool depths and contribute to changes in channel substrate (i.e. embededness). Stream crossings can retard or prohibit the movement of large woody debris, fine organic matter and sediment. As previously noted there are an estimated 80 stream crossings within the affected area. Very little of the roads within this analysis area are located within the riparian corridor associated with affected streams. An exception to this is Forest Road 185 that has several segments that are close to or adjacent to Clear Creek. In general, floodplain isolation and channel migration impediment resulting from road location is not a concern within this analysis area.

Recommendation: Evaluate re-location opportunities for Forest Road 185 that would move the road outside of the floodplain/riparian area of Clear Creek.

AQ (10): How and where does the road system restrict the migration and movement of aquatic organisms? What aquatic species (i.e. fish and amphibians) are affected and to what extent?

Restrictions to migration for aquatic species primarily occur at stream crossings. There are 50 perennial stream crossings along the road system in this analysis area; 12 are bridges, 36 are culverts, and 2 are fords. Six of the culverts and 1 bridge are potential barriers to fish, amphibians, or macroinvertebrates; only 1 culvert and the bridge are administered by the Forest.

Both of these barriers are at the headwaters of streams; correcting the flow would not improve access to a significant amount of habitat.

Eight of thirteen stream reaches capable of supporting fish in the analysis area have been surveyed; four of the unsurveyed reaches are scheduled to be surveyed in 2006. Greasy Creek 2 is the only stream reach that has not been surveyed and is not scheduled to be surveyed. The unsurveyed stream reaches are small, steep gradient channels and are unlikely to support any new or rare species.

Thirty-three species of fish have been documented in these streams including one sensitive fish.

The barriers administered by the Forest Service are not migration barriers for any of the threatened, endangered, sensitive or locally rare (TESLR) species because none of these species normally occur in very small, steep gradient, headwater streams.

AQ (11): How does the road system affect shading, litterfall, and riparian plant communities?
Of the approximately 82 miles of roads in this analysis area, 12.38 (16%) are within the riparian corridor; and of that only 1.7 (2%) miles are administered by the Forest Service. Shading, litterfall and riparian plant communities are not significantly impacted by these roads because the canopy remains closed and the amount of permanently altered habitat is minor.
Recommendation – Sustain trees along riparian corridors.

AQ (12): How and where does the road system contribute to fishing, poaching, or direct habitat loss for at-risk species?
Fishing and poaching could occur for the largemouth, smallmouth, spotted and rock bass, rainbow and brown trout, green sunfish, redbreast sunfish, and bluegill in this analysis area. The "at-risk" species (TESLR) are not subject to fishing or poaching. Direct habitat loss from the road system is unlikely because the riparian corridor will be protected.
Recommendation – Protect the riparian corridor.

AQ (13): How and where does the road system facilitate the introduction of non-native aquatic species?
Not relevant to this analysis area – see Forest Wide discussion

AQ (14): To what extent does the road system overlap with areas of exceptionally high aquatic diversity or productivity or areas containing rare or unique aquatic species or species of interest?
Greasy, Rock, and Clear Creeks support highly diverse aquatic communities of 30, 19 and 19 species of fish in each. Sediment, from Forest Service roads and unimproved roads on private lands, is impacting tributaries.
Recommendation – Work with state, other federal agencies and local landowners to diminish sediment runoff.

Road No.	Road Name	Length	Perennial Stream Crossings						Length in Riparian Corridor
			Bridges		Culverts		Fords		
			Barrier	OK	Barrier	OK	Barrier	OK	
State									
US 64	Old Copper Road	2.65	0	2	4	0	0	0	2.65
SR 30	Kimsey Hwy/State Highway 30	5.35	0	5	1	2	0	0	4.85
		8.00	**0**	**7**	**5**	**2**	**0**	**0**	**7.50**
County									
CH 100	Benton Springs	1.63	0	0	0	0	0	0	0
CH 68 (NFSR)	Kimsey Highway	2.17	0	0	0	2	0	0	0.5
CH 187	Old Fairview	0.20	0	0	0	2	0	0	0.2
CH 188	Fairview-Chestnut Mtn.	3.21	0	0	0	1	0	0	0
CH 189	Block Church Road	1.88	0	2	0	1	0	0	1.48
CH 2332	Archville Loop	1.81	0	1	0	3	0	0	1.0
		10.90	**0**	**3**	**0**	**9**	**0**	**0**	**3.18**
Private									
330501	East Long Branch	0.19	0	0	0	0	0	0	0
		0.19	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Forest Service									
77	Oswald	3.42	0	0	1	1	0	0	0
77	Oswald	8.77	0	0	0	2	0	0	0
77B	Chilhowee	0.84	0	0	0	0	0	0	0
77F	Chilhowee Extension	0.49	0	0	0	0	0	0	0
77FC	Chilhowee Loop C	0.19	0	0	0	0	0	0	0
77FD	Chilhowee Loop D	0.14	0	0	0	0	0	0	0
77FE	Chilhowee Loop E	0.17	0	0	0	0	0	0	0
77FF	Chilhowee Loop F	0.15	0	0	0	0	0	0	0
77P	Chilhowee Camping	0.31	0	0	0	0	0	0	0
77PA	Chilhowee Loop A	0.37	0	0	0	0	0	0	0
77PB	Chilhowee Loop B	0.19	0	0	0	0	0	0	0
185	Clear Creek	3.90	1*	0	0	5	0	0	1.5
477	Lowry Top-Tieskee	0.65	0	0	0	0	0	0	0
33110	Scenic Spur Trailhead	0.08	0	0	0	0	0	0	0
294	Parksville Campground	0.27	0	0	0	0	0	0	0
342	Parksville Rec. Site	0.29	0	0	0	0	0	0	0
342A	Parksville Spur A	0.11	0	0	0	0	0	0	0
342B	Parksville Spur B	0.14	0	0	0	0	0	0	0
366	Madden Branch	0.91	0	0	0	0	0	1	0.2
68	Kimsey Highway	1.39	0	0	0	1	0	0	0
33063	Bates Cemetery	0.25	0	0	0	0	0	0	0
5050	Slickrock Branch	2.22	0	0	0	4	0	0	0
5050A	Slickrock Br. Spur	0.42	0	0	0	0	0	0	0
330903	Laurel Branch Fork	0.15	0	0	0	0	0	0	0
None	Road to Electronic Site	0.10	0	0	0	0	0	0	0
330901	Bell Tower	0.10	0	0	0	0	0	0	0
330902	Dump	0.55	0	0	0	0	0	0	0
77G	Lake Service	0.10	0	0	0	0	0	0	0
33571	Mulepen Branch	3.52	0	0	0	0	0	0	0
33571A	Mulepen Br. Spur A	1.55	0	0	0	0	0	0	0

Road No.	Road Name	Length	Perennial Stream Crossings						Length in Riparian Corridor
			Bridges		Culverts		Fords		
			Barrier	OK	Barrier	OK	Barrier	OK	
33571B	Mulepen Br. Spur B	0.39	0	0	0	0	0	0	0
33571C	Mulepen Br. Spur C	0.27	0	0	0	0	0	0	0
33572	Chil. Seed Orch. Adm. Site	0.22	0	0	0	0	0	0	0
33032	Clear Creek Spur	0.35	0	0	0	0	0	0	0
33031	Hooper Mountain	1.44	0	0	0	0	0	0	0
33041	East Hooper Mountain	4.61	0	0	0	4	0	0	0
33041A	East Hooper Mtn. Spur	0.78	0	0	0	0	0	0	0
33044	West Coon Knob	0.45	0	0	0	0	0	0	0
33043	Coon Knob	0.52	0	0	0	0	0	0	0
1305	Long Branch	1.44	0	0	0	0	0	0	0
33042	East Coon Cr. Ridge	2.65	0	0	0	0	0	1	0
13110	Rock Creek Clemmer	1.91	0	0	0	0	0	0	0
13111	Clemmer Spur A	0.95	0	0	0	0	0	0	0
3311	Ocoee Work Center	0.15	0	0	0	0	0	0	0
3311A	Storage Yard	0.07	0	0	0	0	0	0	0
1311	Clemmer	0.89	0	0	0	0	0	0	0
33101	Thornburg	0.90	0	0	0	0	0	0	0
330104	Oswald Spur	0.46	0	0	0	0	0	0	0
330101	Halls	0.10	0	0	0	0	0	0	0
77C	Oswald Dome	1.01	0	0	0	0	0	0	0
33021	Millstone Ridge	0.59	0	0	0	0	0	0	0
330102	Emmit	0.38	0	0	0	0	0	0	0
330103	Biggs Spring	0.92	0	0	0	0	0	0	0
33022	Presswood Gap	0.45	0	0	0	0	0	0	0
33580	Camp McCroy	0.18	0	1	0	1	0	0	0
366A	Madden Br. Spur A	0.58	0	0	0	0	0	0	0
366B	Madden Br. Spur B	1.14	0	0	0	1	0	0	0
366C	Madden Br. Spur C	0.89	0	0	0	0	0	0	0
366D	Madden Br. Spur D	0.76	0	0	0	0	0	0	0
342C	Parksville Spur C	0.05	0	0	0	0	0	0	0
33121	Little Caney Branch	0.29	0	0	0	0	0	0	0
1003	Little Lost Creek	1.60	0	0	0	0	0	0	0
1003A	Little Lost Creek Spur	0.91	0	0	0	0	0	0	0
11740	Rutledge	0.10	0	0	0	0	0	0	0
33062	Greasy Creek	0.32	0	0	0	0	0	0	0
		60.46	**1**	**1**	**1**	**19**	**0**	**2**	**1.7**
Watershed Totals		**79.55**	**1**	**11**	**6**	**30**	**0**	**2**	**12.38**

*The upstream abutment creates a significant drop that restricts fish migration.

TM 2 and 3: How does the road system affect managing the suitable timber base? How does the road system affect access to timber stands needing silvicultural treatment?
One area of National Forest System (NFS) land, approximately 110 acres, is at a distance of greater than 1/2 mile from an existing road. These 110 acres are in the Rock Creek Gorge, most of it unsuitable for timber management (MP 4.F). Current road system is generally adequate for

silvicultural management and access to timber. Limited amounts of temporary road and system road may be needed.

Access and right-of –way for NFS lands are generally adequate in the Greasy Creek watershed. A right-of-way may be needed across private land to access stands 305/9 and 10, which total approximately 77 acres. Additional right-of-way may be needed upon closer field examination.

WP (1): How does the road system affect access, constructing, maintaining, monitoring, and operating water diversions, impoundments, and distribution canals or pipes?
Road access is adequate within this analysis area to build, maintain, operate and monitor any structures associated with present and future water uses. Currently on NFS lands, these structures are present only within the Chilhowee Recreation Area and the Ocoee Work Center.

WP (2): How does road development and use affect water quality in municipal watersheds?
There are no streams classified as municipal watersheds within the analysis area. Greasy Creek and Madden Branch are classified as "Fish and Aquatic Life". Rock Creek, a large tributary stream of Greasy Creek, is classified as "Trout Stream". The analysis area is a portion of the Ocoee River watershed. The Ocoee River is classified as "Domestic and Industrial Water Supply" by the State of Tennessee. The effects of roads on water quality within the analysis area are considered in Questions AQ (1) – AQ (9).

WP (3): How does the road system affect access to hydroelectric power generation?
No hydroelectric power generation facilities other than a transmission line are located within this analysis area. The road system is adequate to provide access to the transmission line.

SU (2): How does this road system affect managing special-use permit sites (concessionaires, communication sites, utility corridors, and so on)?
There are three Electronic sites in this area, Oswald Dome, Chilhowee A, and Chilhowee B. Necessary access roads are in place and are adequate.

The Appalachia Powerhouse-East Cleveland #1 TVA power transmission line crosses the analysis area in an east west direction. Road access to this line is critical to perform periodic maintenance. Necessary access roads are in place and are adequate.

Volunteer Electric Cooperative has power transmission lines on NFS land at Oswald Dome (the power line right-of way is outside this analysis area), along SR 30, along US 64, to Chilhowee A & B Electronic sites, and they supply power to Chilhowee Recreation area. Necessary access roads are in place and are adequate.

Bell South has telephone lines on NFS land at Oswald Dome, along SR 30 and US 64, and to Chilhowee A & B Electronic sites.

Camp McCroy, a Polk County 4-H Club Organizational Camp is within the analysis area. Necessary access roads are in place and are adequate. The bridge over Greasy Creek has a 3 ton limit. This road and bridge are internal to the camp and they are not Forest Service facilities.

Tennessee Department of Environment and Conservation has a special use permit for Big Creek take-out. Necessary access roads are in place and are adequate.

TDOT has a highway easement deed on the US 64 bridge and a road easement on US 64 from Greasy Creek Bridge to the western boundary of the analysis area.

The National Forests in North Carolina manages the Seed Orchard, compartment 357. Necessary access roads are in place and are adequate.

Price Cemetery, located in compartment 312, had no existing road access.

Bates cemetery is in compartment 300. Polk County Road Department maintains the road, NFSR 33063.

There are recreation special use permits, both annual and temporary, that use Chilhowee Recreation area and the Chilhowee Trail Complex. Necessary access roads are in place and are adequate.

A landowner is using NFSR 366B and 366C to access his in holding (the in holding is not in this analysis area). Necessary access roads are in place and are adequate.

GT (1): How does this road system connect to public roads and provide primary access to communities?

Major public roads in the study area are US 64 along the south side of the study area and SR 30, which runs through the eastern part of the area. County Road 100, Benton Springs Road, also connects to NFSR 77 on the west side of the area. Most open NFSRs connect to one of these three public roads.

The largest established community in the study area is Archville, otherwise known as Greasy Creek community. SR 30 goes through the west side of Archville and various county roads access the community itself. One FS road, NFSR 68, Kimsey Highway, connects to a county road in the community and leads into the Forest on the east side of the study area accessing the Forest rather than the community.

County Road 100, Benton Springs Road, connects Benton Springs, another smaller community, to the Benton area.

The collector road system in the study area is mainly State and County roads, but includes parts or all of the following FS collector roads:

Road No.	Road Name
77	Oswald
185	Clear Creek
68	Kimsey Highway

GT (2): How does the road system connect large blocks of land in other ownership to public roads (ad hoc communities, subdivisions, in holdings, and so on)?

There is one Polk County School Board section 16, part of which is in the study area and is accessed by NFSRs 477 and 77 from SR 30. A quarter of section 21, just south of the School Board section 16, is privately owned and in the past the FS and the landowner pursued exchanging easements to provide access to private land as well as FS land, but the process ended by the failure of the School Board to grant an easement to the FS along the road inventoried by

FS as 330501. In the meantime the private landowner has limited access across other private lands from SR 30 and the FS extended NFSR 33042 to reach land south of section 21. However, legal access to FS land north of the private land does not exist and an easement from the School Board is still needed as medium priority. The landowner still wants an easement across FS to improve his access and has been granted one across School Board property on 330501.

Other private tracts exist in the southeastern part of the study area and are accessed by Fairview County Road and by NFSRs 366, 366B and 366C. NFSR System Road 11740 Rutledge continues to provide historical access to private land.

Collector and Local FS Roads providing access to non-NFS lands:

Road No.	Road Name	Entity Accessed
77	Oswald	Polk County School Board/private
477	Lowry Top-Tieskee	Polk County School Board
366	Madden Branch	private
366B	Madden Branch Spur B	private (road closed to public)
366C	Madden Branch Spur C	private (road closed to public)
11740	Rutledge	private (road closed to public)

GT (3): How does the road system affect managing roads with shared ownership or with limited jurisdiction (RS 2477, cost-share, prescriptive rights, FLPMA easements, FRTA easements, DOT easements)?
There are no shared ownership (cost-share) roads on the Forest. The FS has a co-operative agreement with Polk County for sharing various types of roadwork from planning to maintenance on roads of common interest to the FS and to the county. An example is repair work done by the FS on Benton Springs Road necessitated by hauling FS boulders during construction of the Ocoee Whitewater Center Olympic venue.

Polk County has an easement for Benton Springs Road and TDOT has easements for the Greasy Creek Bridge on US 64 and the part of US 64 from Greasy Creek to the western boundary of the study area.

GT (4): How does the road system address the safety of road users?
Part of NFSR 77 Oswald (3.42 miles) exists in the study area as a paved road with objective maintenance level (ML) 5. Though paved, it is a low speed road because of its vertical and horizontal alignments and safety is addressed by the use of a posted speed of 30 mph.

There are other paved single lane or double lane roads open year round or seasonally in recreation areas. Most of these have been re-paved in recent years and because of the low speeds within the recreation area, safety is not a major concern.

There are some open NFSRs in the study area with objective maintenance level 3 that are single lane with turnouts and designed for low volume, low speed traffic. Since they are subject to the Highway Safety Act, safety of road users is a concern. But being designed for low speed and low volume, safety is usually not a major problem. They are normally bladed twice a year and the roadsides mowed every two years. Other activities that are done on an as-needed basis include hazard tree removal, slide repair, pothole repair, etc.

The following lists roads open to the public:

Road No.	Road Name
77	Oswald (some paved ML 5; rest gravel ML 3)
477	Lowry Top-Tieskee
185	Clear Creek
33110	Scenic Spur Trailhead
366	Madden Branch
68	Kimsey Highway
33063	Bates Cemetery (maintained by Polk County)

Also, roads in Chilhowee and Parksville recreation areas are open year round or seasonally.

Most of the other roads in the area are not open to public and are used only when needed for specific purposes, such as timber sales. Safety is not as much of a concern where there is generally single use and very little traffic.

Recommendations:

1. Keep all roads as currently managed (same RMOs).
2. Continuously look for unauthorized use on user created routes and determine those to be decommissioned and those to be added to the system.
3. Identify routes accessing dispersed campsites and determine those to be designated as open roads and those to be decommissioned.
4. Continue to maintain and improve high use open roads to meet Goals 47, 48 and 50.
5. As funding becomes available, shift (relocate) sections of NFSR 185 away from Clear Creek to meet Goals 47, 48 and 50 and Objectives 11-1.01 and MA4-1.01.

UR (1): Is there now or will there be in the future excess supply or excess demand for unroaded* recreation opportunities?
There are no inventoried roadless areas, Wilderness Areas, or proposed Wilderness Study Areas within the analysis area that could be affected by road management decisions. The area is managed primarily as a Roaded Natural recreation setting as described in the Forest Plan as, *"developed, but highly roaded settings popular for dispersed recreation activities such as hunting, fishing, camping and horseback riding"* (USDA 2004). The Chilhowee Trails Complex provides unroaded recreation opportunities in the Greasy Creek Watershed and represents a growing demand for non-motorized recreation opportunities and settings within the area.

UR (2): Is developing new roads into unroaded areas, decommissioning of existing roads, or changing the maintenance of existing roads causing substantial changes in the quantity, quality, or type of unroaded recreation opportunities?
Developing new roads into or that cross the Chilhowee Trails complex would degrade the unroaded trail experience desired by hikers and bikers. Decommissioning existing gated roads or converting their use to trails and/or trailhead parking could improve the quality of the unroaded Chilhowee Trails Complex by improving access, reducing competition for parking at the Chilhowee Recreation Area, and provide additional unroaded trails opportunities- potentially linking to sights of interest such as the heritage sites on NFSR 77 or linking to the Rock Creek Scenic Gorge.

UR (3): What are the adverse effects of noise and other disturbance caused by developing, using, and maintaining roads, on the quantity, quality, and type of unroaded recreation opportunities?
Road improvements may invite additional use of the area and decrease the sense of remoteness and solitude. The sites and sounds of developing and maintaining roads in the analysis area may diminish the overall recreation experience if noticeable from the trail system.

UR (4): Who participates in unroaded recreation in the areas affected by building, maintaining, and decommissioning roads?
The unroaded areas include dispersed hunting and fishing as well as provide hiking and biking opportunities on the Chilhowee Trails Complex enjoyed by visitors on a local and regional scale.

UR (5): What are these participants' attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?
Hikers, bikers, hunters and anglers attachments may include strong feelings of ownership from repeat visits or taking part in volunteer trails maintenance work. The developed facilities at Chilhowee Recreation Area and Parksville Lake Campgrounds provide a level of comfort while preserving the desired natural setting.

UR (6): How is developing new roads into unroaded areas affecting the Scenic Integrity Objective, SIO(s)?
Developing roads into unroaded areas has the highest potential to diminish or degrade scenic integrity along the Chilhowee Trails Complex or in viewed side slopes from NFSR 77, US 64 or SR 30.

RR (3): What are the adverse effects of noise and other disturbances caused by building, using, and maintaining roads on the quantity, quality, or type of roaded recreation opportunities?
As part of a scenic byway, visitors expect a maintained road surface. The effects of noise and other disturbances caused by maintaining the roadway may diminish form the overall visitor experience, but this effect is likely to be temporary in nature. Building additional roads may diminish the overall appeal of the scenery if viewed from NFSR 77, US 64, or SR 30.

RR (4): Who participates in road-related recreation in the areas affected by road building, changes in road maintenance, or road decommissioning?
Visitors to the Ocoee Scenic Byway utilize roadways in the analysis area as a venue for driving for pleasure and to view the scenery, as well as to access the support facilities and trails in the analysis area. SR 30 is a connector route between US 64 and the Hiwassee River Corridor and a major route for the small communities in and bordering the analysis area.

RR (5): What are these participants attachments to the area, how strong are their feelings, and are alternative opportunities and locations available?
As one of 2 nationally designated Scenic Byways in the Cherokee National Forest, and the first nationally designated Forest Service Scenic Byway in the country the Ocoee Scenic Byway is considered unique with high levels of attachment by local users and repeat visitors.

RR (6): How does the road system affect the Scenic Integrity Objective, SIO?
The road system affects the SIO's by defining the social and physical setting from where the analysis area is primarily viewed. Currently, vistas are defined and maintained along NFSR 77.

The higher elevations provide long distance vistas to Parksville Lake and the surrounding forested mountainous backdrop, as well as views to rural Benton and the agricultural landscape. Additional roads may detract from the desired scenic quality.

SI (1): What are people's perceived needs and values for roads? How does road management affect people's dependence on, need for, and desire for roads?
Driving for pleasure and scenic driving the Ocoee Scenic Byway are desired activities in the analysis area. Chilhowee Recreation Area and Parksville Lake Campgrounds support a range of recreation opportunities in and around the analysis area. Limited high quality roadways support this need and maintain the desired ROS roaded natural character. Increased numbers of roads may diminish the desired natural and remote character desired by forest visitors. SR 30 links the Hiwassee and Ocoee corridors and provides access to local communities.

SI (2): What are people's perceived needs and values for access? How does road management affect people's dependence on, need for, and desire for access?
Access is desired and road management can contribute to the overall visitor experience/visitor expectation.

SI (5): How are roads that constitute historic sites affected by road management?
NFSR 77 does provide a venue for heritage tourism, a desirable niche market identified by local tourism marketing studies.

SI (6): How are community, social, and economic health affected by road management (for example, lifestyles, businesses, tourism industry, infrastructure maintenance)?
The Ocoee Scenic Byway contributes to the community, social and economic "health" by providing the setting for the local tourism groups and entrepreneurs to capitalize from.

SI (10): How does road management affect people's sense of place?
Road management can both contribute to and detract from the unique sense of place drawing visitors to an area. Quality of road surface, mowing schedule, and thoughtful design of support facilities can compliment the inherent qualities of a natural forested setting or detract from the overall aesthetic appeal. There is a current proposal to work on improving the sense of place by updating signage and information outlets in the study area.

SUMMARY AND RECOMMENDATIONS

- ☐ Keep all roads as currently managed (same RMOs).
- ☐ Continuously look for unauthorized use on user created routes and determine those to be decommissioned and those to be added to the system.
- ☐ Identify routes accessing dispersed campsites and determine those to be designated as open roads and those to be decommissioned.
- ☐ Continue to maintain and improve high use open roads to meet Goals 47, 48 and 50.
- ☐ As funding becomes available, shift (relocate) sections of NFSR 185 away from Clear Creek to meet Goals 47, 48 and 50 and Objectives 11-1.01 and MA4-1.01.
- ☐ Sustain trees along riparian corridors.
- ☐ Protect riparian corridors.
- ☐ Work with state, other federal agencies and local landowners to diminish sediment runoff.

BIBLIOGRAPHY

USDA Forest Service, Washington Office. 1999. FS-643 Roads Analysis: Informing Decisions About Managing the National Forest Transportation System

USDA Forest Service. 2004. Revised Land and Resource Management Plan for the Cherokee National Forest. Cherokee National Forest, Cleveland, TN. 463 pp.

ROADS ANALYSIS TEAM

Mary Dodson, Wildlife Biologist
Janan Hay, NEPA Coordinator
Jim Herrig, Forest Fisheries Biologist
Charlie Lewis, Civil Engineer
Mike Nicolo, Forest Hydrologist
Bob Lewis, Silviculturist
Mark Pistrang, Forest Botanist/Ecologist
Doug Byerly, Forest Recreation Specialist
Sarah Belcher, Landscape Architect